Claims:

1. Process for the production of a protein comprising
   a) culturing a *Zygosaccharomyces bailii* strain
   b) expressing and secreting the protein
   c) isolating the protein.
2. The process of claim 1, wherein the *Z. bailii* strain is transformed with a vector comprising a DNA sequence coding for the protein, functionally linked to a signal sequence leading to the secretion of the protein and further functionally linked to a promoter.
3. The process of claim 2, wherein the vector is an extra-chromosomal plasmid.
4. The process of claim 3, wherein the plasmid is derived from an endogenous episomal plasmid from a *Z. bailii* strain.
5. The process of claim 2, wherein the plasmid comprises sequences for replication, stabilization and/or plasmid copy number control, obtainable from *Z. bailii*.
6. The process of claim 4, wherein the plasmid comprises at least 35 bases of one of the sequences selected from the list of: SEQ ID No.: 63, SEQ ID No.: 64, SEQ ID No.: 65, SEQ ID No.: 66, SEQ ID No.: 67, SEQ ID No.: 68, SEQ ID No.: 69, SEQ ID No.: 70 or SEQ ID No.: 71.
7. The process of claims 2-6, wherein the promoter is a triose-phosphate isomerase promoter, obtainable from *Saccharomyces cerevisiae* or from *Z. bailii*, preferably from *Z. bailii*.
8. The process of claims 2-6, wherein the promoter is a glyceraldehyde phosphate dehydrogenase promoter, obtainable from *Saccharomyces cerevisiae, Z. bailii or Z. rouxii*, preferably from *Z.rouxii*.
9. The process of claims 2-8, wherein the signal sequence is a continuous stretch of 15 to 60 amino acids, comprising one or more positively charged amino

acid(s) followed by a stretch of about 5 to 10 hydrophobic amino acids, which may or may not be interrupted by non-hydrophobic residues.

10. The process of claims 2-8, wherein the signal sequence is selected from the list of: SEQ ID NO.: 1, SEQ ID NO.: 3, SEQ ID NO.: 5, SEQ ID NO.: 7, SEQ ID NO.: 9, SEQ ID NO.: 11, SEQ ID NO.: 13, SEQ ID NO.: 15, SEQ ID NO.: 17, SEQ ID NO.: 19, SEQ ID NO.: 21, SEQ ID NO.: 23, SEQ ID NO.: 25, SEQ ID NO.: 27, SEQ ID NO.: 29, SEQ ID NO.: 31, SEQ ID NO.: 33, SEQ ID NO.: 35, SEQ ID NO.: 37, SEQ ID NO.: 39, SEQ ID NO.: 41, SEQ ID NO.: 43, SEQ ID NO.: 45, SEQ ID NO.: 47, SEQ ID NO.: 49, SEQ ID NO.: 51, SEQ ID NO.: 53, SEQ ID NO.: 55, SEQ ID NO.: 57, SEQ ID NO.: 59, SEQ ID NO.: 61.

11. The process of claim 1, wherein the *Z. bailii* strain is transformed with a vector comprising the DNA sequence coding for the protein, functionally linked to the signalling pre-sequence of the alpha-subunit of the K1 killer toxin of *Kluyveromyces lactis* and further functionally linked to the triose-phosphate isomerase promoter from *S. cerevisiae*.

12. The process of claim 11, wherein the vector is the plasmid pZ_3kl as shown in figure 1 b.

13. The process of claim 1, wherein the *Z. bailii* strain is transformed with a vector comprising the DNA sequence coding for the protein, functionally linked to the signal sequence of the pre-pro α-factor of *S. cerevisiae* and further functionally linked to the triose-phosphate isomerase promoter from *S. cerevisiae*.

14. The process of claim 13, wherein the vector is the plasmid $pZ_3pp\alpha$ as shown in figure 1 c.

15. The process of claims 2-14, wherein the DNA sequence coding for the protein is derived from animal, bacterial, fungal, plant or viral sources.

16. The process of claims 2-15, wherein the *Z. bailii* strain that is transformed is selected from the list of: ATCC 36947, ATCC 60483, NCYC 1427 or ATCC 8766.

17. The process of one of the preceding claims, wherein the *Z. bailii* strain has been subjected to a selection process for improved secretion.

18. The process of one of the preceding claims, wherein the *Z. bailii* strain is cultivated in a chemically defined medium.

19. The process of one of the preceding claims, wherein the protein is isolated from the culture medium.

20. A *Z. bailii* strain, expressing and secreting a heterologous protein.

21. The *Z. bailii* strain of claim 20, wherein the cells are transformed with a vector comprising a DNA sequence coding for the heterologous protein, functionally linked to a signal sequence leading to the secretion of the protein and further functionally linked to a promoter.